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ZOOLOGY.—A redescription of *Typhlonema salomonis* Kreis (*Nematoda*).¹

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Male and female specimens of a nematode from the digestive tract of skinks of the genus *Mabuya*, collected in 1939 in Belgian Congo by Arthur Loveridge, of the Museum of Comparative Zoology, Harvard University, are believed by the writer to represent *Typhlonema salomonis* Kreis, 1938. This genotype was based on female characters, and partly because of this the systematic position of the genus *Typhlonema* has been regarded as uncertain.

The available specimens are not from the type host or locality of Kreis's species. The writer's identification of them, therefore, is based entirely on morphological grounds. It should be emphasized, however, that there are certain discrepancies between the morphology of the females, as determined by the writer, and the characteristics ascribed to *T. salomonis* by Kreis.² The African specimens have an anus, weakly developed, but distinct, equal lips and the typical ascaridoid complement of cephalic papillae. In view of well-established facts concerning the structure of ascaridin nematodes generally, it seems very likely, however, that a reexamination of Kreis's specimens, if undertaken, will show that they

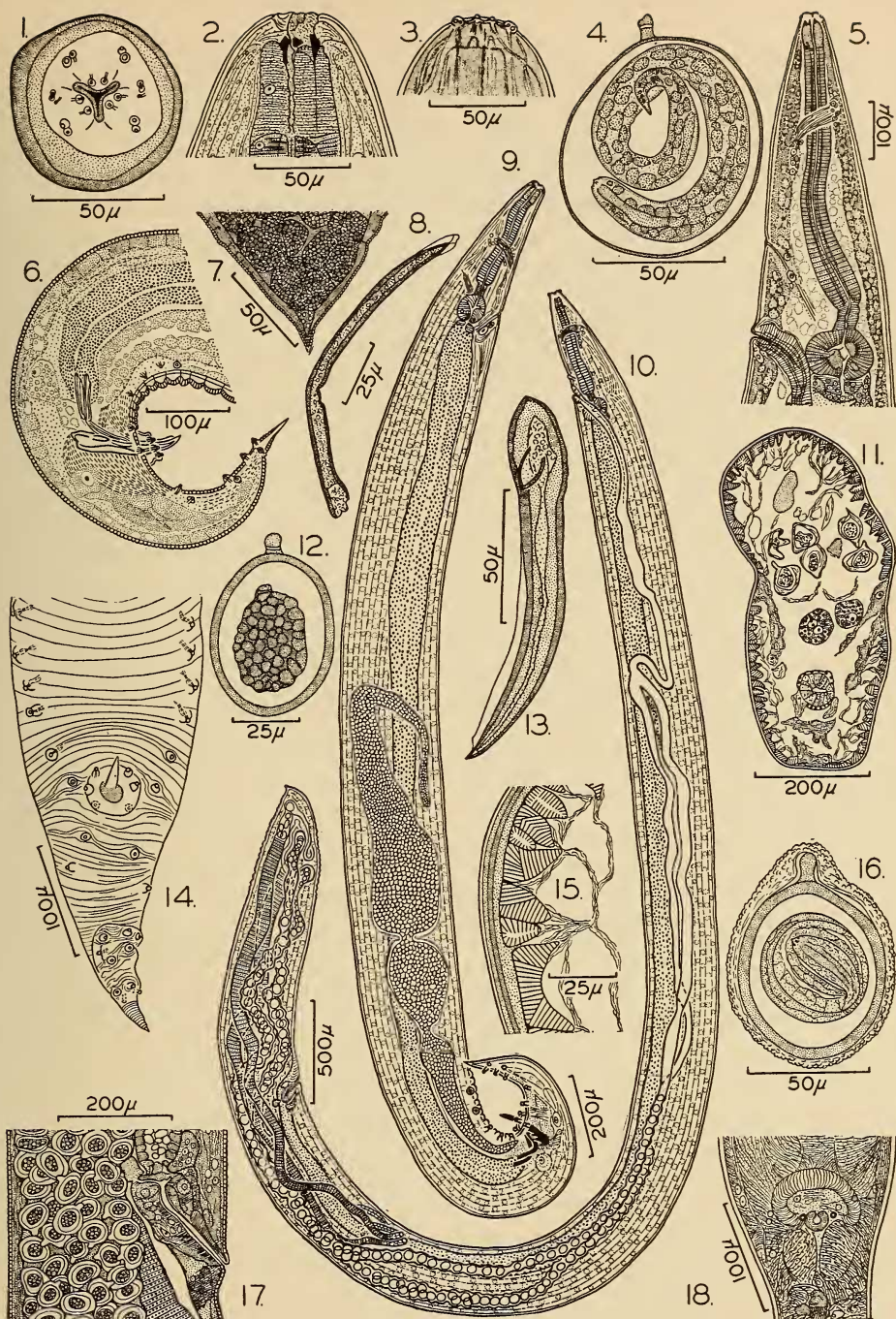
also have an anus and the usual number, as well as a normal distribution, of cephalic papillae. Hence, because the available females agree with Kreis's description in the important points of vulva position and structure of eggs, both of which are unusual, as well as in many other details, the writer has no hesitancy in regarding them as belonging to the genus *Typhlonema*. Also, there appears to be no acceptable evidence and little chance that the specimens from *Mabuya* differ specifically from Kreis's specimens from *Gecko*. Therefore, there is here presented, as a recharacterization of *T. salomonis*, the following description of the female and male specimens from Africa in an effort to delineate more satisfactorily the characteristics and affinities of *Typhlonema*.

Typhlonema salomonis Kreis, 1938

Description.—Lips flat, weakly developed; each probably corresponding to apical portion only of typical ascaridoid lip. Cephalic papillae of internal circle very prominent; amphids and the four double papillae of external circle well developed; ventrolaterals present, but small and rather weakly developed (Figs. 1, 3). Oral opening roughly triangular; stoma small, apparently consisting of sclerotized protorhabdions partly surrounded by esophageal tissue (Fig. 2). Esophagus with short, histologically differentiated vestibule (Figs. 2, 5); corpus

¹ Received September 29, 1942.

² KREIS, HANS A., *Beiträge zur Kenntnis parasitischer Nematoden. VIII. Neue parasitische Nematoden aus dem Naturhistorischen Museum Basel*. Zentralbl. Bakteriol., 1 Abt. Orig., **142** (5-6): 329-352. 1938.



Figs. 1-18.—*Typhlonema salomonis*: 1, Head (female), *en face* aspect. 2, Anterior extremity (female), optical section through protorhabdions and vestibule, slightly oblique dorsal aspect. 3, Cephalic region (female), showing papillae of dorsal lip, superficial dorsal aspect. 4, Egg from anterior portion of uterus, embryonated but lacking protein coat, optical section. 5, Female, esophageal region, lateral aspect. 6, Male, caudal region, lateral aspect. 7, Female, tip of tail, lateral aspect. 8, Spicule (left), lateral aspect. 9, Male, lateral aspect. 10, Female, lateral aspect. 11, Cross section (female) slightly anterior to anus, showing musculature. 12, Egg from posterior portion of uterus, in cleavage stage, optical section. 13, Gubernaculum, lateral aspect. 14, Male, caudal region, ventral aspect. 15, Portion of cross section (female), showing muscle cells. 16, Egg from ovjector, embryonated and with fully developed protein coat, optical section. 17, Female, anal region, lateral aspect. 18, Male, optical section through cloacal region, showing appearance of muscles slightly beneath ventral surface.

highly muscular, proportionately long, slender, of almost uniform diameter except for slight swelling in postcorporeal region; isthmus short, but definite, of lesser diameter than postcorpus; bulb ovoid, well developed, containing well developed valvular apparatus (Fig. 5). Deirids apparently absent. Excretory pore at level between bulb and postcorpus of esophagus; terminal excretory duct moderately long (Fig. 5). Lateral alae, narrow, distally bifid, extending from near cephalic region to near cloacal region in male; absent in female. Musculature, polymyarian-platymyarian in anterior part of body and polymyarian-coelomyarian in midbody (Figs. 11, 15). Body laterally compressed in some fixed specimens (Fig. 11), except in esophageal region, but nearly cylindrical in others.

Female.—Maximum length in available specimens about 16.85 mm; length in young, but gravid specimens ranging down to about 8.5 mm. Body of more or less uniform diameter except for gradual tapering in anterior one-tenth to cephalic extremity (diameter about 40–50 μ) and sudden tapering posteriorly to tip of tail. Maximum dorsoventral width about 0.59 mm in large specimens and about 0.30 mm in smallest specimens. Anus (Figs. 10, 17) unusually far removed from posterior extremity. Tail long, equivalent to about one-sixth to one-fifth of body length: diameter throughout most of its length almost as great as that of midbody; tapering in its extreme posterior portion only and terminating in a small acutely pointed process (Figs. 7, 10). Vulva prominent, located alongside bulb, isthmus, or postcorpus of esophagus, behind excretory pore (Figs. 5, 10). Reproductive system opisthodelphic; in young specimens the moderately long vagina passes posteriorly from the vulva to a long ovijector which unites with two slender parallel uteri which extend posteriorly into the tail region, sometimes nearly to posterior tip of body where they unite with oviducts; oviducts reflexed anteriorly and somewhat coiled, leading to ovaries which pass anteriorly and parallel to region just anterior to anus where their tips are reflexed posteriorly (Fig. 10). In fully grown specimens the uteri are somewhat distended and coiled, particularly in caudal region, sometimes entwined about intestine and sometimes also coiled anteriorly and extending almost to

region of esophageal bulb so fundamental plan of reproductive system is obscured. Ovoviviparous; uterine eggs of eccentric oval to spherical shape, provided with monopolar knob, and of roseate hue, the coloration apparently localized in perivitellus space. Eggs in posterior portions of uteri in various cleavage stages, of variable size, tending to be distorted by pressure, with moderately thick, dense shell provided with monopolar thumb-like projection (Fig. 12); in middle portions of uteri some eggs embryonated, frequently with shell thinner than in less developed or mature eggs and also tending to be larger than these eggs (Fig. 4); in anterior portions of uteri, in oviduct and vagina, the eggs are larvated, almost spherical and are provided with well-developed rugose, mammillated protein coat anchored in part to true shell by monopolar thumblike process of latter and forming around this process a bluntly rounded knob (Fig. 16), the true shell being thicker than in uncoated embryonated eggs, apparently as result of compression. Fully developed eggs are about 60 μ to 87 μ long, including the monopolar knob, and about 50 μ to 60 μ wide.

Male.—Much shorter and comparatively more robust than female; about 3.1 mm long by about 0.24 mm in maximum dorsoventral width; esophagus about 0.37 mm long. Reproductive system simple (Fig. 9); testis reflexed near middle of body. Tail subulate, terminating in an extremely minute spike, curved sharply ventrad and anteriorly in available fixed specimens; about 0.22 to 0.24 mm long. Cuticle in region just anterior to cloaca thrown up into prominent transverse folds not appearing to be homologous with mamelons and not bearing plectanes, appearing to be provided with close-set longitudinal intrastrial ridges. Preanal sucker absent, but circumcloacal elevation present (Figs. 6, 9, 14); arrangement of musculature in pericloacal region as shown in figure 18; caudal alae absent. Caudal papillae consisting of 16 pairs, including 5 preanal sublateral pairs and 11 pairs distributed as follows: 4 subventral pairs in the circumcloacal or adanal position, 3 of them on the circumcloacal elevation and 1 lateral to it; 7 definitely postanal pairs, 4 of them subventral (first, third, fifth and seventh pairs from the caudal tip) and 3 sublateral (second, fourth and sixth pairs

from caudal tip; Fig. 6). The posteriormost pair on the circumcloacal elevation is weakly developed (Fig. 14). Five pairs of the postanals are grouped near the caudal tip; the two sub-lateral pairs in this group are smaller than the three subventral pairs (Fig. 14). Gubernaculum cuneiform, very prominent, robust, strongly sclerotized, alate, about 0.143 mm long; provided with a proximal pair of triangular latero-ventrally directed wings; distal tip usually protruding from cloacal opening and rather sharply pointed (Figs. 6, 9, 13, 14). Spicules two, elongate, very slender, about 0.130 mm long, lightly sclerotized, slightly expanded proximally, with bluntly pointed alate hyaline distal tip (Figs. 6, 8, 9).

Hosts.—*Gecko vittatus* Houtt. (type host); *Mabuya striata* (Peters); *Mabuya megalura* (Peters).

Location.—Stomach and intestine.

Distribution.—Makira, Solomon Islands; Molinga River, Idjwi Islands, Belgian Congo.

Specimens.—U.S.N.M. Helm. Coll. nos. 40695; 40698; 45308. (Specimens also in Museum of Comparative Zoology, Harvard Univ.)

Remarks: Kreis² placed *Typhlonema* in the Oxyuroidea and in the subfamily Oxyurinae. Walton,³ in a key to some oxyuroid genera from reptiles, tentatively included the genus under the Oxyuridae, remarking on the difficulty of placing it systematically and stating that it shows affinities to both Atractidae and Oxyuridae. On the basis of the foregoing description, it is the writer's opinion that *Typhlonema* belongs in the Ascaridoidea, as conceived by Chitwood and Chitwood,⁴ and in the family Cosmocercidae. Although the musculature in *Typhlonema* is polymyarian, whereas the family Cosmocercidae is characterized by authors as meromyarian, in other respects the genus appears to be far more closely related to certain cosmocercid genera than to any belonging in the four other ascaridoid families recognized by the Chitwoods.

³ WALTON, A. C. *Some oxyurids from a Galapagos turtle.* Proc. Helm. Soc. Washington 9(1): 1-17. 1942.

⁴ CHITWOOD, B. G., and CHITWOOD, M. B., *An introduction to nematology*, sect. 1, pt. 1, 53 pp. 1937.

PROCEEDINGS OF THE ACADEMY

378TH MEETING OF THE BOARD OF MANAGERS

The 378th meeting of the Board of Managers was held in the library of the Cosmos Club on November 16, 1942. President CURTIS called the meeting to order at 8:01 P.M., with 17 persons present, as follows: H. L. CURTIS, F. D. ROSSINI, R. J. SEEGER, J. E. GRAF, F. H. H. ROBERTS, Jr., F. G. BRICKWEDDE, F. C. KRACEK, W. G. BROMBACHER, F. M. SETZLER, H. L. HALLER, A. WETMORE, F. B. SILSBEE, E. W. PRICE, L. W. PARR, H. G. DORSEY, and, by invitation, G. A. COOPER and A. SEIDELL.

The minutes of the 377th meeting were read and approved.

President CURTIS announced the appointment of F. B. SILSBEE (chairman), J. E. GRAF, and C. L. GARNER to constitute a special committee to consider recommendations for increasing the income of the Academy.

For the committee to consider ways and means of decreasing the expenses of the Academy, Chairman BRICKWEDDE presented a complete and detailed report embodying a number of recommendations. In acting upon this report, the Board authorized the appointment of a special committee to consider a

change in the number of issues of the JOURNAL from 12 monthly to 6 bimonthly issues a year without decreasing the total number of pages or the amount of material published each year, and also to consider a change in the kind of printing of the JOURNAL from the present typeset printing to a photographic offset process. Suggestions regarding certain other possible economies were referred to the 1943 Executive Committee.

For the committee to consider recommendations for increasing the income of the Academy, Chairman SILSBEE presented a complete and detailed report. As a result of the suggestions made, the Board authorized the appointment of a committee to contact the U. S. Office of Coordinator of Inter-American Affairs with regard to the purchase by them of subscriptions to the Academy's JOURNAL for transmission to the more important libraries in South America.

The Secretary reported the deaths of two members.

Senior Editor SEEGER reported that the December number of the JOURNAL might need to be sharply curtailed to insure keeping within the 1942 allotment. The Board authorized the Editors to expend, if necessary, up to \$65